CLAIMS

What is claimed is:

1. A method of providing sets of network addresses for dynamically configuring hosts on a network, the method comprising the computer-implemented steps of:

sending a first request for a first count of network addresses for a first set of network addresses for dynamically configuring hosts on the network;

receiving a first message indicating the first set of network addresses;

receiving a second message requesting a second count of network addresses for a second set of network addresses for dynamically configuring hosts on the network;

determining the second set of network addresses based at least in part on the first set of network addresses and the second count; and

sending a first response indicating the second set of network addresses.

2. A method as recited in Claim 1, further comprising:

receiving, from a first host on the network, a third message requesting a network address; and

sending, to the first host in response to the second message, a second response offering a first network address based on the first set of network addresses and the second set of network addresses.

3. A method as recited in Claim 2, wherein the first set includes the first network address and the second set does not include the first network address.

4. A method as recited in Claim 1, further comprising receiving from a network administrator a third message indicating a third set of network addresses for dynamically configuring hosts on the network.

5. A method as recited in Claim 1, further comprising determining usage of the first set of network addresses.

6. A method as recited in Claim 5, further comprising reporting the usage of the first set of network addresses.

7. A method as recited in Claim 5, said step of determining the second set of network addresses is further based at least in part on the usage of the first set of network addresses.

8. A method as recited in Claim 5, wherein:

the first message further indicates a first time interval for use of the first set; and

the method further comprises sending, before the first time interval expires, a second request for renewal of use of the first set; and

the second request includes data indicating the usage of the first set.

9. A method as recited in Claim 1 further comprising the computer-implemented steps of:

receiving a third message for renewal of use of the second set, the third message including data indicating the usage of the second set,

determining a third set of network addresses for dynamically configuring hosts on the network based on the second set and the usage of the second set; and

sending a second response indicating the second set of network addresses.

10. A method as recited in Claim 1, wherein each set of the first set and the second set is indicated by a base address and a number indicating a range of addresses above the base address.

11. A method as recited in Claim 10, wherein the number indicating the range is a mask that indicates a number of most significant bits in the base address that are constant over the range.

12. A method as recited in Claim 1, wherein the second set is empty.

13. A method as recited in Claim 1, wherein the second set is the same as the first set.

14. A method as recited in Claim 1, wherein the hosts on the network include interfaces on a router on the network.

15. A method as recited in Claim 1, further comprising:

receiving, from a router on the network, a third message requesting a third count of network addresses for a third set of network addresses for configuring interfaces on the router;

determining the third set of network addresses based at least in part on the first set of network addresses, the second set of network addresses, and the third count; and

sending, to the router in response to the third message, a second response indicating the third set of network addresses.

16. A method as recited in Claim 1, wherein:

the first message received includes data indicating that a first server should send a third set of network addresses for dynamically configuring hosts on the network; and

the method further comprises sending, in response to the data indicating that the first server should send the third set, a second request for the third set of network addresses.

17. A method as recited in Claim 16, further comprising receiving, from the first server in response to the second request, a third message indicating the third set of network addresses.

18. A method as recited in Claim 1, further comprising:
determining that a third set of network addresses should be sent based at least in part on the first set and the second set; and
inserting into the first response data indicating that a third set of network addresses for dynamically configuring hosts on the network should be sent.

19. A method as recited in Claim 18, wherein:
the method further comprises determining usage of the first set of network addresses; and
said step of determining that a third set of network addresses should be sent is based at least in part on the usage of the first set.

20. A method as recited in Claim 18, further comprising receiving, in response to the data indicating that the third set of network addresses should be sent, a third message requesting the third set of network addresses.

21. A method of providing sets of network addresses for dynamically configuring hosts on a network, the method comprising the computer-implemented steps of:
receiving, from a first server on the network, a first message indicating a first set of network addresses for dynamically configuring hosts on the network and a first time interval for use of the first set;
determining usage of the first set of network addresses; and
sending, to the first server before the first time interval expires, a second request for renewal of use of the first set,
wherein the second request includes data indicating the usage of the first set.

22. A method of providing sets of network addresses for dynamically configuring hosts on a network, the method comprising the computer-implemented steps of:

sending, to a first server on the network, a first message indicating a first set of network addresses for dynamically configuring hosts on the network and a first time interval for use of the first set;

receiving, from the first server before the first time interval expires, a request for renewal of use of the first set, the request including data indicating the usage of the first set,

determining a second set of network addresses for dynamically configuring hosts on the network based on the first set and the usage of the first set; and

sending to the first server a second message indicating the second set of network addresses.

23. A method of providing sets of network addresses for dynamically configuring hosts on a network, the method comprising the computer-implemented steps of:

sending, to a first server, a first request for a first count of network addresses for a first set of network addresses for dynamically configuring hosts on the network;

receiving, from the first server in response to the first request, a first message including first data indicating the first set of network addresses and second data indicating that the first server should send a second set of network addresses for dynamically configuring hosts on the network; and

sending, to the first server in response to the data indicating that the first server should send the second set, a second request for the second set of network addresses.

24. A method of providing sets of network addresses for dynamically configuring hosts on a network, the method comprising the computer-implemented steps of:

receiving, from a first server, a first request for a first count of network addresses for a first set of network addresses for dynamically configuring hosts on the network;

determining usage of a second set of network addresses for dynamically configuring hosts on the network;

determining the first set of network addresses based at least in part on the first count and the usage of the second set;

determining a third set of network addresses for dynamically configuring hosts on the network based at least in part on the first set and the usage of the second set; and

sending, to the first server in response to the first request, a first message including first data indicating the first set of network addresses and second data indicating that a third set of network addresses should be sent.

25. A computer-readable medium carrying one or more sequences of instructions for providing sets of network addresses for dynamically configuring hosts on a network, which instructions, when executed by one or more processors, cause the one or more processors to carry out the steps of:

sending a first request for a first count of network addresses for a first set of network addresses for dynamically configuring hosts on the network;

receiving, in response to the first request, a first message indicating the first set of network addresses;

receiving a second message requesting a second count of network addresses for a second set of network addresses for dynamically configuring hosts on the network;

determining the second set of network addresses based at least in part on the first set of network addresses and the second count; and

sending, in response to the second message, a first response indicating the second set of network addresses.

26. An apparatus for providing sets of network addresses for dynamically configuring hosts on a network, comprising:

means for sending a first request for a first count of network addresses for a first set of network addresses for dynamically configuring hosts on the network;

means for receiving, in response to the first request, a first message indicating the first set of network addresses;

means for receiving a second message requesting a second count of network addresses for a second set of network addresses for dynamically configuring hosts on the network;

means for determining the second set of network addresses based at least in part on the first set of network addresses and the second count; and

means for sending, in response to the second message, a first response indicating the second set of network addresses

27. An apparatus for providing sets of network addresses for dynamically configuring hosts on a network, comprising:

a network interface that is coupled to the network for sending and receiving one or more packet flows therefrom;

a processor; and

one or more stored sequences of instructions which, when executed by the processor, cause the processor to carry out the steps of:

sending a first request for a first count of network addresses for a first set of network addresses for dynamically configuring hosts on the network;

receiving, in response to the first request, a first message indicating the first set of network addresses;

receiving a second message requesting a second count of network addresses for a second set of network addresses for dynamically configuring hosts on the network;

determining the second set of network addresses based at least in part on the first set of network addresses and the second count; and

sending, in response to the second message, a first response indicating the second set of network addresses.

28. A method as recited in Claim 1, wherein the second message includes data indicating that a requesting device that issued the second message does not make assignments of individual network addresses from among the second set of network addresses such that all future requests for such assignments will be relayed back.

29. A method as recited in Claim 1, wherein the second message includes data indicating that a requesting DHCP server should free the second set of network addresses as soon as possible by making no new assignments of addresses or subnets therefrom.

30. A method as recited in Claim 1, wherein the second message includes data indicating that a requesting DHCP server should discontinue use of the second set of network addresses when all addresses in the subnet are unassigned.

31. A method of providing subnets of network addresses for dynamically configuring hosts on a network using the dynamic host control protocol (DHCP), the method comprising the computer-implemented steps of:

sending a first DHCP request for a first count of network addresses for a first subnet of network addresses for dynamically configuring hosts on the network;

receiving a first DHCP message indicating the first subnet;

receiving a second DHCP message requesting a second count of network addresses for a second subnet of network addresses for dynamically configuring hosts on the network;

determining the second subnet based at least in part on the first set of network addresses, the second count, and a pool of available subnets; and

sending a first DHCP response indicating the second subnet.